ADA COMPLIANCE AND ACCESSIBILITY OF AQUATIC FACILITIES IN THE NORTH TEXAS AREA

Hilary Eryn Pike, B.A.

Thesis Prepared for the Degree of

MASTER OF SCIENCE

UNIVERSITY OF NORTH TEXAS

May 2007

APPROVED:

John Collins, Major Professor
Joseph Walker, Minor Professor
Jan Hodges, Committee Member and Program Coordinator
Jeff Goodwin, Chair of the Department of Kinesiology, Health Promotion and Recreation
M. Jean Keller, Dean of College of Education
Sandra L. Terrell, Dean of the Robert B. Toulouse School of Graduate Studies

Pike, Hilary Eryn. ADA Compliance and Accessibility of Aquatic Facilities in the North Texas Area. Master of Science (Recreation and Leisure Studies), May 2007, 19 pp., 3 tables, references, 12 titles.

The purpose of this study was to determine the degree to which existing aquatic facilities in the North Texas metroplex complied with the 1991 Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the proposed Americans with Disabilities Act Accessibility Guidelines: Recreation Facilities (ADAAG supplement).

Fifty-two aquatic facilities were evaluated based on: parking lot, ticket counter, gate/entry, restroom, dressing area, drinking fountain, pathway, and pool entry method structural domains. Physical measurements and a few direct observations were recorded on the survey instrument. Surveys were then reviewed and facility scores were tabulated.

No facility was found to be 100% compliant with ADAAG and the ADAAG supplement. Aquatic facilities are already struggling to catch up with the 1991 ADAAG, but when the United States Department of Justice approves the proposed ADAAG supplement, aquatic facilities will fall even further behind.

INTRODUCTION

Facilities can play a large role in whether or not a person with a disability decides to engage in physical activity. Say a person wants to enjoy a brisk swim on a hot summer day, but is somewhat apprehensive about going to a public facility alone. The person decides to go anyway. He drives to the facility and parks in the appropriate location. He unloads his van and lowers himself down into his chair. He makes his way to the front counter only to realize that because he is sitting and the counter is very high, it is difficult for the staff to make eye contact with him. He makes his way to the restroom and while he is locking up his belongings, he notices that there are no toilet stalls large enough to accommodate his chair. Even though this is frustrating, he overlooks it because he really likes to swim. He comes out of the restroom and makes his way to the pool. He looks around and tries to figure out how he is going to get into the pool. There are no pool lifts. There are no ramps or sloped entries. The only methods of entry for this pool are stairs and ladders. Upon asking the staff on duty, one of the staff members informs him that they have no way of assisting him into the water. He inquired where he might find a pool that would be usable for him, and they responded that the nearest facility with a lift or sloped entry was 20 miles down the road. In defeat, he retrieved his belongings and went home.

After visiting aquatic facilities in the Dallas/Fort Worth area, many of the aquatic facilities may have patrons experience the scenario presented earlier. What will happen with this individual is that he will most likely not attempt to visit another aquatic facility. This type of experience may also detour him from attempting to visit any other recreational facility (Allison & Hibbler, 2004). The facility may have been built in the 1980s, which was prior to the 1990 Americans with Disabilities Act (ADA). Just because the facility may not be mandated to fall within ADA, does that mean that accommodations should not be made? By not updating a

facility to make it more accessible, in essence, the facility is excluding participation by a portion of the population. No person wants to be treated as an afterthought.

Throughout history, people have fought for equal rights. However, after the passage of the ADA, facility access by persons with disabilities should have become easier. Since 1991, any new or renovated aquatic facility is expected to be in compliance with the Americans with Disabilities Act Accessibility Guidelines (ADAAG) (US Access Board, 1991).

On October 3, 2002, the final version of the proposed supplement was published in the Federal Registrar (US Access Board, 2002). The supplement to the ADAAG is currently waiting for final acceptance by the US Department of Justice (DOJ). Currently the ADAAG encompasses all parts of an aquatic facility, with the exception of requiring access to the bodies of water. This proposed supplement includes additional requirements for aquatic facilities, within the scope of recreation facilities, which will assist in creating a more accessible facility overall. Specifically, aquatic facilities will be required to have two methods of accessible entry/exit for each body of water at the facility (Scott, April 2003). If an aquatic facility has a competition pool, a play pool, and a lazy river, each of these bodies of water must have two methods of accessible entry/exit as prescribed by the proposed ADAAG supplement. Although the supplemental guidelines are not enforceable until they are accepted by the DOJ, the US Access-Board highly recommends that facilities comply with the proposed supplement (US Access Board, 2002). For those aquatic facilities that are currently struggling to comply with the original 1991 ADAAG (Cardinal & Spaziani, 2003; Rimmer, Riley, Wang & Rauworth, 2005; Rimmer, Riley, Wang, Rauworth, & Jukowski, 2004), once the proposed supplement is accepted by the DOJ (US Access Board, 2002), those aquatic facilities will fall even further behind in meeting the ADA accessibility standards.

PURPOSE

Cardinal and Spaziani's (2003) study on Americans with Disabilities Act (ADA) compliance and accessibility of recreational facilities (primarily fitness) in Western Oregon, indicated that ADA compliance was low for public facilities that are required to comply with ADA Accessibility Guidelines (ADAAG) (Cardinal & Spaziani, 2003). The purpose of this investigation is to determine the degree to which existing aquatic facilities in the North Texas metroplex comply with the 1991 ADAAG and the proposed ADAAG supplement standards.

METHODS

Design

Aquatic facilities were selected for analysis by geographic location. Each facility was directly observed and physically measured for the existence of certain facility features during the summer of 2006 for compliance with the (1991) Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the proposed supplement. Nine specific structural domains were assessed in terms of the ADAAG and the proposed supplement compliance, which was then used to create individual domain compliance scores, as well as an overall score.

Population

One hundred and thirty-two aquatic related facilities were identified within the Dallas/Fort Worth Metroplex using an Internet search and expert knowledge of aquatic facilities located in the area. Due to time and expense, a convenience sample was used to select 68 aquatic facilities for analysis.

Measures

Survey Instrument

Based on a review of the ADAAG and the proposed supplement, a list of ten primary ADA structural domains relevant to aquatic facilities was compiled, which closely paralleled the domains used in the 2003 Cardinal and Spaziani study. These structural domains included: parking lot, ticket counter, gate/entry, restrooms, dressing areas, drinking fountains, pathways, public telephones, vending machines and pool entry methods (US Access Board, 2002; US Access Board, 1996). After further consideration, public telephones were removed from the

ADA list because it was not considered to be an essential aquatic factor, since public telephones are no longer available at most public aquatic facilities. Vending machines were placed in the overall pathways domain and measured in respect to being on an accessible route, which reduced the ten original primary ADA structural domains to eight.

Once the eight primary ADA structural domains were identified, each domain was further divided into specific features. Specific physical measurements for assessing each feature (i.e. toilet stall) within each structural domain (i.e. restroom) were then determined. A breakdown of the number of features for each domain were: parking lot (6 features), ticket counter (3 features), gate/entry (5 features), men's restroom (15 features), women's restroom (15 features), dressing areas (4 features), drinking fountains (6 features), pathways (5 features), and pool entry methods (5 features) (US Access Board, 1991; US Access Board, 2002). Each feature was then assessed in terms of one or more specific measurements developed based on the applicable guidelines derived from the ADAAG and the proposed supplement. A series of measurements were sometimes needed in order to properly evaluate the feature's accessibility compliance. For example, one procedure required a measurement from the finished floor to the toilet paper holder, and another measurement from the back wall to the toilet paper holder (US Access Board, 1991). Together these two different measurements were used to evaluate the accessibility of the toilet paper feature. For a toilet paper holder to be accessible, it must be at least nineteen inches from the finished floor and at most 36 inches from the back wall (US Access Board, 1991). Although restrooms were categorized as one structural domain; they were scored separately as men's and women's restrooms for further compliance comparisons. The final survey assessment instrument contained eight structural domains, evaluated over 49 features, using primarily physical measurements, with a few direct observations (How many entries/exits

are at the facility?) and a few yes/no questions (Can the hardware of the accessible toilet stall be used with a closed fist?).

A pilot study was conducted on a facility to test the survey instrument. All measurements were taken using a yardstick and a 25-foot retractable tape measure, and recorded to the nearest eighth of an inch.

Procedures

Evaluation Implementation

Due to time constraints and the intense labor required to physically measure 68 aquatic facilities, a group of recreation and leisure studies graduate students (measurement team) were utilized to assist with data collection. Each member of the measurement team completed a three-hour overview and training session on proper facility evaluation/measurement protocol and was issued a 36-inch yardstick and a 25-foot retractable tape measure. After an explanation of the study, the researchers conducted a practice facility evaluation with the measurement team at a local aquatic facility excluded from the study. Measurement team members practiced taking measurements during the walk-through in order to ensure proper measurement techniques. During the training, all measurement team members were instructed on how to record measurements to the nearest eighth of an inch. The measurement team was instructed to only evaluate facilities according to the survey questions and not make a personal assessment of assigned facilities.

The measurement team was divided into nine pairs (one male and one female per team) to evaluate aquatic facilities in the study area. Each pairing was assigned two to four different aquatic facilities from which to collect data. Data was collected over a four-week period from

mid-July to mid-August during the summer of 2006. All visits were inconspicuously conducted at the participating aquatic facilities during normal operating hours. Facility supervisors were contacted by the measurement team and notified of the anticipated visitation date. In addition to taking measurements, teams also collected the latter of the year the facility was built or the year the facility was most recently renovated.

Each participating organization was assured that all facility identifiers would remain confidential. If requested, the supervisors were provided with a facility report and a list of recommendations for future consideration.

Once the measurement team members returned the 68 completed surveys, the researchers carefully reviewed each survey for completeness and accuracy. Some surveys were returned to measurement team members for clarification. After the measurement team resubmitted the returned surveys, the clarified surveys were included in the study and any questionable surveys were omitted. The final number of facilities included in the study was 52.

Scoring

All 52 aquatic facilities included in the study were subjected to the same scoring standards, regardless of the facility's age or date of last renovation. A master score sheet was created to correspond to the survey instrument. Each survey was reviewed for compliance with the ADAAG and proposed supplement. A feature received a "1" if it met accessibility standards in accordance with ADAAG and the proposed supplement. Domain features that were either in violation of the ADAAG, the proposed supplement, or were completely missing received "0" points. Points awarded were totaled for each feature within each structural domain, divided by the total possible points for each structural domain, and then multiplied by 100 for a compliance

score (percentage). All structural domains were scored in the same manner; giving no additional weight for more utilized structural domains.

Each structural domain (i.e. men's restroom) contained a designated number of features to score. In the men's restroom, the sink would count as one feature, but eight different measurements were taken of this feature. If one of the eight measurements was not in compliance with ADAAG or the proposed supplement, then the feature would get 0 points. No partial credit was awarded.

Some features of each structural domain were combined to determine compliance. For example, the ADAAG requires at least fifty percent of all entries and exits to be accessible (non-revolving/non-turnstyle). The total number of entrances and exits was divided by the total number of all non-revolving and non-turnstyle entrances and exits and multiplied by 100 to get a percent of accessible entries/exits. This percentage was used to determine if that feature received a score of 0 or 1 in respect to having the appropriate percent of accessible entries/exits.

For each facility, each structural domain received a compliance score based on the possible point totals at that given facility. Features that did not exist at a facility were not counted against the facility (except water fountains, which are required by health codes) (Texas Department of Health, 2004). If a men's restroom did not provide a soap dispenser, the facility was not penalized; however, if a facility did provide a soap dispenser in the men's restroom and the soap did not comply, that item would receive a score of 0. For example, if a men's restroom complied with 10 of the 15 existing features, the compliance percentage was calculated to be 66.7% for the men's restroom. However, if 3 features did not exist and the men's restroom complied with 10 of the 12 existing features on the instrument, the compliance percentage was calculated to be 83.3%.

Even though each structural domain was scored individually, it was important to examine how compliant the facilities were overall. For the overall compliance score, the point totals for each of the structural domains were added together, divided by the total possible points for the entire facility, and multiplied by 100.

To get an overview of compliance, all results were analyzed using SPSS version 12.0. Frequencies were run to obtain the mean, standard deviation, and variance for each structural domain.

RESULTS

All facilities had at least one feature that was not Americans with Disabilities Act Accessibility Guidelines (ADAAG) or proposed supplement compliant. The compliance scores represent an average of all 52 facilities. On average, aquatic facilities were about 95% compliant with the ADAAG in gate/entry structural domain, with scores ranging from 66.7% to 100% compliant, and facilities were 87% compliant with the ADAAG in the pathways structural domain, with scores ranging from 0% to 100% compliant (Table 1). The lowest scoring domains were dressing areas and restrooms, with a compliance score of 64.2% in the men's restroom (range 9.1% to 91.3%); 63.6% compliance in the women's restroom (range 8.3% to 100%); and 55.7% compliance in the dressing areas (range 25% to 100%). This illustrates how poorly aquatic facilities are complying with the ADAAG regarding restrooms and dressing areas. Currently the proposed supplement is not enforceable. If they were enforced at the time of this study, the pool structural domain compliance score would be 48.3%, dropping the facility ADAAG compliance score from 69.9% to 65.8%.

Table 1

Overview of ADAAG Compliance at Aquatic Facilities by Domains

	Average Compliance*	Median*	Standard Deviation	Highest Compliance*	Lowest Compliance*
Parking Lot	78.2	83.3	21.8	100	16.7
Ticket Counter	69.9	66.7	28.5	100	0
Gate/Entry	95.0	100	11.1	100	67
Pathway	87.0	100	18.5	100	25
Drinking Fountain	70.2	83.3	26.3	100	0
Dressing Area	55.7	50	17.2	100	25
Men's Restroom	64.2	70.3	24	93.3	9.1
Women's Restroom	63.6	66.7	25.1	100	8.3
ADAAG Overall	69.9	74.6	16.4	91	31
Pool Requirements	48.3	50	25.8	100	0
Overall including supplement	65.8	70.8	16.3	87.5	24.6

*in percentage

Although the majority of structural domains received compliance scores below 79%, a number of facilities were scored 100% for some of the structural domains. In the gate/entry area, 43 of the 52 facilities fully complied with the ADAAG. Pathways were also a structural domain in which many facilities scored well. Thirty-one facilities fully complied with the pathways requirements of ADAAG (Table 2). On the other hand, the pool requirement domain, with an overall compliance score of 48.3%, was primarily non-compliant in regards to the entry method feature. Based on the proposed supplement, this means that most pools lacked two acceptable pool entry methods. For the dressing area domain, the length and width of the bench feature consistently did not meet the requirements set forth by the ADAAG.

Table 2

*Number of Facilities in 100% Compliance with the ADAAG and Proposed ADAAG Supplement and Most Violated Features (*n=*52)*

Feature	# of Fac w/ 100% Compliance	Most Violated Feature
Parking Lot	19	signage
Ticket Counter	20	counter height
Gate/Entry	43	not accessible
Pathway	31	obstacles
Drinking Fountain	9	floor clearance
Dressing Area	1	bench size
Men's Restroom	0	toilet stall size
Women's Restroom	2	toilet stall size
Pool Requirements	2	entry methods based on proposed ADAAG supplement

DISCUSSION

Summary

This study examined the degree to which aquatic facilities in the North Texas area were in compliance with Americans with Disabilities Act Accessibility Guidelines (ADAAG) and the proposed supplement. Sixty-eight aquatic facilities were visited during the summer of 2006, with 52 of the facilities included in the study. Each measurement team completed a compliance survey for each facility visited. The survey instrument primarily consisted of physical measurements recordings.

No facility was 100% ADA compliant. Overall compliance scores ranged from 30.8% to 91.3%, with 19 facilities scoring in the 80th percentile or above. Of the nine structural domains examined, facilities scored highest on the gate/entries (95%) and pathways (87%). The areas with the lowest compliance scores were dressing areas (55.7%), men's restrooms (64.2%), and women's restrooms (63.6%).

Additional data was collected in anticipation of the incorporation of the supplemental pool requirements into the ADAAG. In October of 2002, the proposed supplement with the new pool requirements was published in the Federal Registrar and pool operators were encouraged to follow the new requirements as soon as possible, even though the requirements are not enforceable until being approved by the US Department of Justice (US Access Board, 2002). The overall compliance with the proposed ADAAG supplement is 48.3%. When this structural domain was factored into the overall scores, the average compliance score across all eight domains drops from 69.9% to 65.8%.

In comparison to the Cardinal and Spaziani study (2003), the structural domains in this study scored much higher. Although drinking fountains did not receive the highest score among

domains in this study, they did score 15% higher than the drinking fountains at the Western Oregon physical activity facilities (Table 3) (Cardinal & Spaziani, 2003).

Table 3

Comparison of Compliance Percentages Between Aquatic Facilities to Western Oregon Physical Activity Facilities

Feature	Aquatic Facilities	Oregon Physical Activity Facilities
Ticket Counter/ Customer Service Desk	69.9%	37%
Drinking Fountains	70.2%	55%
Rest-/Locker Rooms	64.2% (men's) 63.6% (women's)	44%
Pathway	87%	58%
Exterior Doors/Gate/entry	95%	90%
Parking Lot	78.2%	56%

While these two studies were conducted several years apart, not many new aquatic facilities have been built in the North Texas area since the 2003 Cardinal and Spaziani study. Aquatic facilities did score well in respect to the physical activity facilities (Cardinal & Spaziani, 2003), but the compliance scores were still low. With the exception of the pool requirements included in the proposed supplement, all other areas should be in 100% compliance.

Progress is being made in creating aquatic facilities that are more accessible; however, there is much more room to improve. Facility operators are encouraged to make every effort to accommodate the entire public (Scott, April 2003). Owners and operators need to look forward to what is coming, make every effort to pre-empt forthcoming legislation (Scott, April 2003), and stop waiting for a governing body to mandate facility changes or lawsuits to enforce compliance. Changes and improvements to the ADAAG are intended to clarify any seemingly deficient areas. Eight of the nine areas examined in this study ideally should be in 100%

compliance. At the time of this study, the aquatic industry has had fifteen years to meet ADAAG compliance and four years to prepare for the proposed supplement. Yet, the majority of facilities are still not completely compliant. Even after the passage of the new ADAAG, there are no guarantees that a person with a physical disability will have an easier time accessing aquatic facilities (Scott, March 2003).

Recommendations

Parking Lot

Although parking lots are one of the most compliant areas; improvements can be made. The easiest change a facility could make is adding a sign to designate which of the accessible spaces is van accessible. At least one of the accessible spaces must be identified as "van accessible" (US Access Board, 1991).

Ticket Counter

Many of the ticket counters are designed to serve a standing public. Consideration for children and persons with disabilities is lacking. A simple solution is to create an alternate area that is at least 36 inches with a maximum height of 36 inches (US Access Board, 1991).

Gate/Entry

By ADAAG standards, 50% of all entrances and exits must be accessible (US Access Board, 1991). These facilities survive by serving the public; thus, it is of utmost importance to invest in making the gates/entries accessible to all. Facilities might need to consider removing turnstyles to better accommodate all individuals.

Pathway

Seating areas and tables are scattered throughout most aquatic facilities. Many of the facilities do not have tables to accommodate persons in wheelchairs. For a small investment, a facility can easily add appropriate tables.

Drinking Fountain

Drinking fountains are mandatory at all aquatic facilities according to the department of health (Texas Department of Health, 2004). It is important to properly install the fountains. Many drinking fountains are installed at incorrect heights and do not provide enough clearance space for a person in a wheelchair to pull up to. If it is not cost effective to replace or alter current water fountains to comply with the ADAAG, double check current accessibility standards upon buying future drinking fountain replacements.

Dressing Area

Facility operators need to spend more time concentrating in this domain. Benches are major problems for dressing areas. Those included in this study were in all shapes and sizes. Where possible, benches should be replaced with ADAAG compliant benches.

Restrooms

One of the biggest violators in restrooms is the size of the accessible toilet stalls. This may be due to the installers not being careful or due to older facilities built prior to ADA. For those facilities without accessible stalls and for those who have accessible stalls that are too small, consider combining two stalls to create one larger, more accessible stall. Essential items

such as toilet paper holders and grab bars are often incorrectly placed. Non-essential items such as changing stations, soap, and hand dryers also tend to be non-compliant (too high or too low). Many of the non-essential items can be relocated to fall within the accessibility guidelines.

Pool Requirements

Although the pool requirements from the proposed supplement are not enforceable at the time of this study, it is important to make efforts to accommodate all persons at an aquatic facility. After the initial announcement of the intended passage of the supplement to the ADAAG, facility designers have made little effort to encourage facilities to adopt the future standards into new designs. Decision makers for new facility construction may need to be more vocal about increasing accessibility design features.

Overall

Facility operators/owners need to understand the ADAAG and zealously attempt to bring their facilities into compliance. More education on the topic of facility accessibility for facility operators/owners may assist in increasing awareness of accessibility concerns.

Limitations

All facilities included in this study were located in the Dallas/Fort Worth metroplex. Although 132 facilities were initially identified, only 52 of these facilities were included in the final analysis. It is possible that the final compliance percentages do not accurately portray the trend of facility compliance.

Another limitation is the accuracy of measurement by each measurement team member. It would seem that there is no room for interpretation in accurately recording measurements, but that is not true. Human error is always a factor. A measuring stick can accidentally slip while trying to measure a feature; thus, giving an inaccurate measurement if not caught by the measurement team member.

The survey instrument was developed to measure very specific items in each structural domain at each facility. In no way does this survey instrument include every measurement possible in the facilities. This study specifically examined the physical barriers for people with disabilities. Other barriers were not examined in regard to recreational participation.

Importance

Cities and towns are growing in population at an incredible rate. The larger the population becomes, the larger the diversity within that population. Diverse populations will have a variety of needs that need to be met.

Public health also becomes a concern of the local government. Public health is not just about treating sick persons; it is also about promoting healthy choices and lifestyles. Healthy choices include eating properly, getting enough sleep, and engaging in physical activity (Cooper & Quatrano, 1999; Durstine, Painter, Franklin, Morgan, Pitetti, & Roberts, 2000).

Many facility operators rely on builders to correctly measure and mount features according to the ADAAG. Although contractors may attempt to get close to the correct measurements, they have many other things of concern than whether the toilet is half an inch too tall. The facility operators should examine the standards and examine their own facility

according to the ADAAG and proposed supplement. A lawsuit is not a good way to find out that the facility is ADAAG deficient on some features (Scott, April 2003).

This study focuses only on the accessibility of aquatic facilities concerning barrier removal. Attitudes of facility operators and patrons with disabilities were not examined. Perhaps the patrons allow a certain amount of latitude to the facilities with respect to potential barriers. Many facilities do have limited budgets and must decide where money must go.

Facility operator knowledge of the ADAAG was not examined. Perhaps facilities are lacking due to facility operators not knowing or understanding the ADAAG. Although lack of understanding the guidelines will not get a facility out of a lawsuit, it may explain why facilities have so many features of non-compliance (Rimmer et al., 2004).

REFERENCES

Allison, M.T., Hibbler, D.K. (2004). Organizational Barriers to Inclusion: Perspectives from the Recreational Professional. *Leisure Sciences, 26*, 261-280.

Cardinal, B.J., Spaziani, M.D. (2003). ADA compliance and accessibility of physical activity facilities in western Oregon. *Am J Health Promot, 17*, 197-201.

Cooper, R.A., Quatrano, L.A. (1999). Research on physical activity and health among people with disabilities: A consensus statement. *J Rehabil Res Dev, 36*,142-153.

Durstine, J.L., Painter, P., Franklin, B.A., Morgan, D., Pitetti, K.H., Roberts, S.O. (2000). Physical activity for the chronically ill and disabled. *Sports Medicine, 30*, 207-219.

Rimmer, J.H., Riley, B., Wang, E., Rauworth, A. (2005). Accessibility of health clubs for people with mobility disabilities and visual impairments. *Am J Public Health, 95*, 2022-2028.

Rimmer, J.H., Riley, B., Wang, E., Rauworth, A., Jurkowski, J. (2004). Physical activity among persons with disabilities: Barriers and facilitators. *Am J Prev Med, 26*, 419-425.

Scott, J.P. (2003, March). The fine print. *Aquatics International*, 16-18.

Scott, J.P. (2003, April) Act now! *Aquatics International*, 20-23.

Texas Department of Health. (2004). *Standards for swimming pools and spas*. Retrieved August 20, 2004 from http://www.tdh.state.tx.us/beh/gs/pools.htm

United States Access Board. (2002). *Americans with Disabilities Act accessibility guidelines for buildings and facilities: Recreation facilities*. Retrieved January 25, 2006 from http://www.access-board.gov/recreation/final.htm

United States Access Board. (1996). *Swimming pool accessibility executive summary*. Retrieved January 25, 2006 from http://www.access-board.gov/research/Pools/poolsreport.htm

United States Access Board. (1991). *Americans with Disabilities Act accessibility guidelines for buildings and facilities*. Retrieved January 25, 2006 from http://www.access-board.gov/adaag/html/adaag.htm